

ABSTRACT

A vertical cavity surface emitting laser having a dielectric gain guide. The gain guide may provide current confinement, device isolation and possibly optical confinement. The first mirror and an active region may be grown. A pattern may be placed on or near the active region. A dielectric material may be deposited on the pattern and the pattern may be removed resulting in a gain guide. Then a top mirror may be grown on the gain guide.

This structure with the dielectric gain guide may have specific characteristics and/or additional features.